NPFRF's EFP to Evaluate a New Approach to Salmon Excluders for B season pollock fishing

North Pacific Fisheries Research Foundation

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PI is dedicating this new effort to improve salmon excluders to the legacy of John Gruver (1954-2024)

EFP Objectives

- **Improve salmon excluder performance which has plateaued at ~20-30%* in Bering Sea pollock fishery (*based mostly on Chinook tests)**
- **Evaluate a new idea aimed at improving chum salmon escapement, excluder designed for B season fishing conditions: e.g. lower pollock CPUE, longer tows, more ambient light (Workshop Nov 2024)**

Concept for new excluder

- **Locate new excluder further forward in net larger mesh sections to address past performance challenges:**

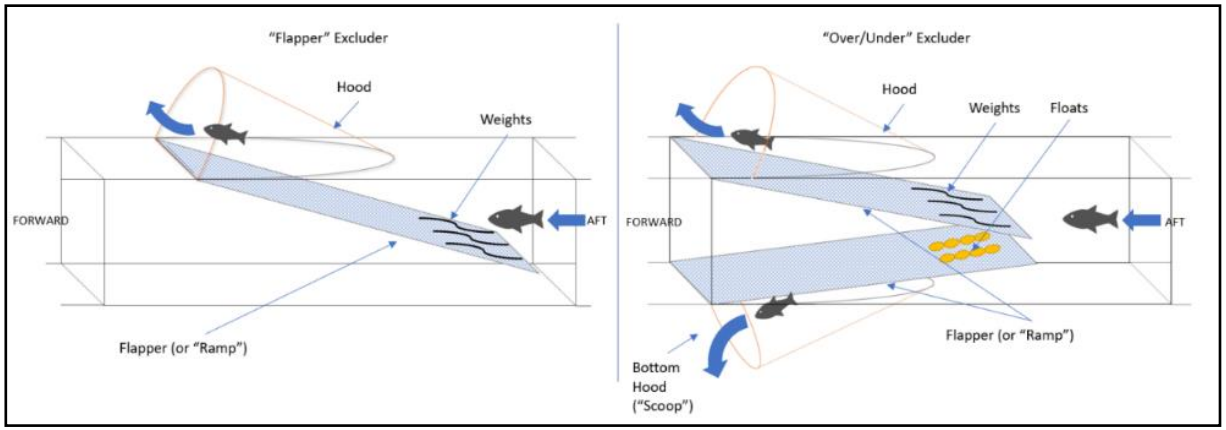
  1) Congestion of fish in intermediate section blocking salmon's access to escapement portals

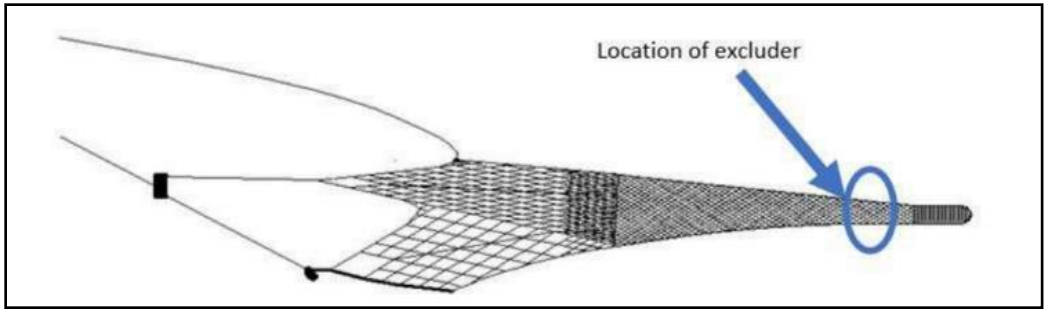
  2) Salmon often hovering at escapement portals (fatigue?)

New Excluder for EFP

- **Excluder is large diamond-shaped escapement portal(s) installed in top panel**
- **Located in 8” to 32” sections of net (little is known about fish behavior there)**
- **Shape/location should create updraft of water flow to incentive salmon escapement, might need more (e.g. floatation and leadlines)**
- **EFP is a preliminary evaluation of new excluder concept**

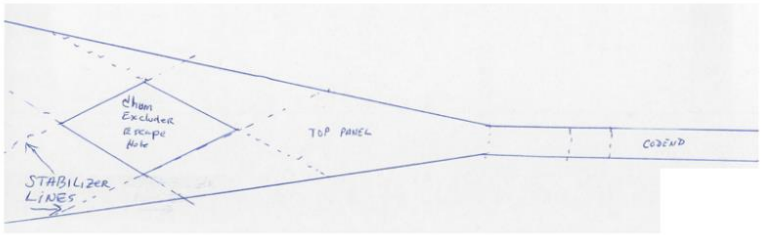
Overview of Salmon excluder designs in use today



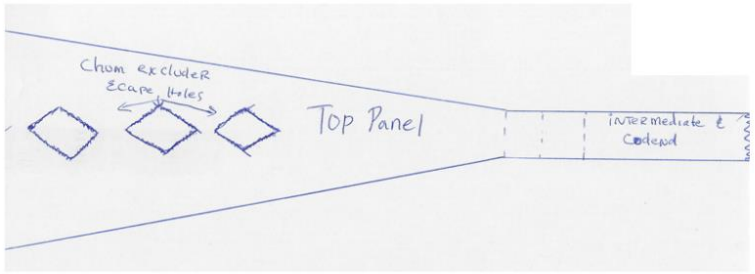


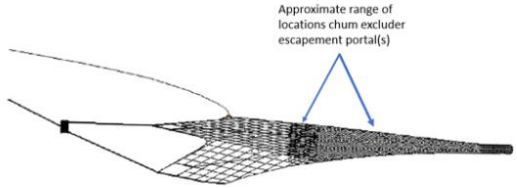
Concept for the new excluder and general location

Single large escape portal



Multiple escape portals

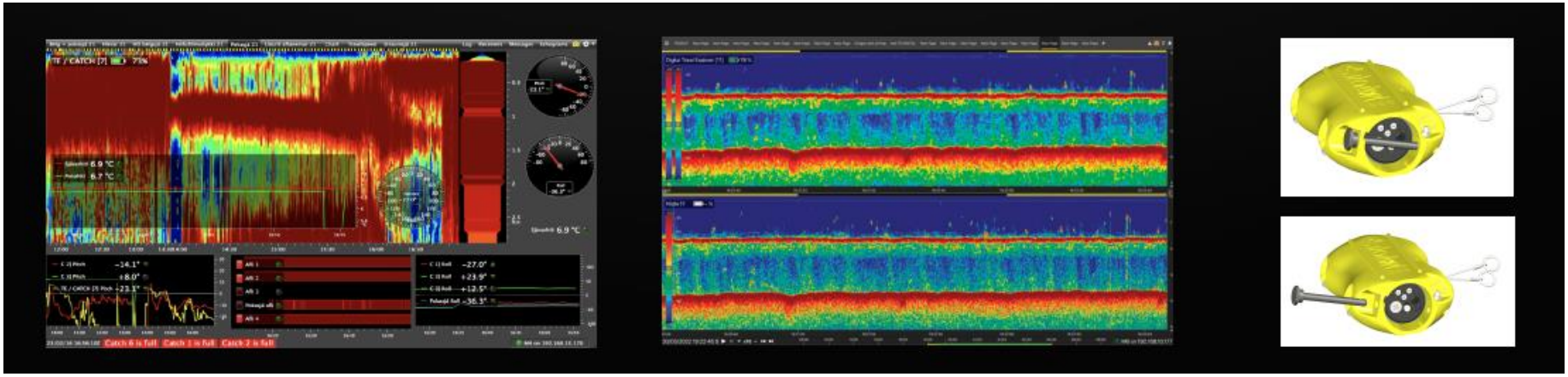




Field Research components

- **EFP has two phases, on each of the three EFP vessels ….three HP categories. Fieldwork July-August 2025:**
- **Phase 1: Collects headrope sonar, wireless echosounder*, and video camera data for pollock and salmon behavior assessment in large mesh sections**
- **Track movement of fish from entrance of net through large mesh section of interest**
- **Phase 1 uses preliminary evaluation of fish behavior data (on vessel) to select most promising location for excluder balancing chum escapement/feasible levels of pollock loss**

Wireless echosounder for evaluating fish behavior in large mesh sections of pollock nets



Field Research components

- **Phase 1 also informs size of escapement portal relative to diameter of net, looks at water flow changes to validate flow calculations from flume tank research (mid-April)**
- **Phase 2 installs excluder in the selected location(s) from Phase 1 and conducts initial evaluation of escapement potential**
- **Escapement evaluation is very preliminary (not attempting to test for statistical significance of escapement rates)**

EFP Components (continued)

- **Following at-sea tests, detailed analysis of fish behavior data from Phases 1 &2 to better understand of how: fishing/ambient light/sea state variables affect observed pollock and chum salmon behavior**
- **Draft report evaluating potential of new excluder design based on more detailed analysis of data and incorporation of feedback from captains (second salmon excluder workshop Fall 2025)**
- **Final EFP report prepared after AFSC review of draft report. Council has option for presentation of findings of final report**

Requested EFP Exemptions

- **Testing allowed in all BS pollock fishing areas suitable for EFP objectives (Rolling hotspot closures, CVOA)**
- **EFP catches would not count against TAC and salmon bycatch cap (Chinook)**
- **All EFP catch (pollock, other groundfish, PSC) reported into NMFS Catch Accounting System databases (electronic reporting and fish tickets) with “EXP” (identifier)**

EFP objectives and area closure exemptions

- **Application explains that in "normal" years, chum encounters in areas outside of any rolling hotspots or CVOA are likely sufficient for EFP objectives (enough to allow chum behavior assessment with cameras in large mesh sections)**
- **In some years, however, (e.g. 2024), chum only encountered in very patchy areas, access to those areas may be needed, hence requested EFP exemptions to help ensure we meet objectives of EFP**
- **EFP PI and field project manager on EFP vessels will monitor salmon catches on haul-by-haul basis to EFP hauls inside closures are warranted for EFP objectives**

Requested EFP Exemptions (continued)

- **Exemptions from NMFS catch handling regulations "may be needed" to allow EFP to track salmon catches by haul on vessels in EM program (we will work with FMA and Alaska Region on how to do this after Council review of permit application)**
- **Also consult with FMA/Region for EFP catch reporting and accounting to establish how CP vessels can do EFP hauls as combined trip (CDQ or AFA trip with EFP)**

Chinook catches in EFP expected to be very minimal

Rate of chinook salmon per metric ton of groundfish in BS pollock fishery (July and August only)					
2014			0.003		
2015			0.005		
2016			0.003		
2017			0.009		
2018			0.004		
2019			0.007		
2020			0.003		
2021			0.003		
2022			0.002		
2023			0.001		
2024			0.002		
Avg			0.004		
Avg rate * 3000 mt groundfish			11		
Estimated chinook with 2017 rate			28		

PI's rationale for not having an EFP cap on Chinook catches

PI's concerns that Chinook catch constraints on EFP could negatively affect attainment of objectives and/or our ability to arrange vessel participation

Where we are now with EFP tasks (Figure 5 in application)

	2024						2025												2026			
Task	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Chum excluder ideas workshop with pollock captains etc. (organize, recruit participants, convene)			x	x	x																	
NMFS review of EFP application with NPFMC input			x	x	x	x	x	x	x	x												
Turn excluder ideas into designs, scale drawings, evalate flow and sizing					x	x	x	x	x													
Preparation for and flume tank trip and construction of models						x	x	x	x	x												
Consult with RACE reviewers on vessel selection criteria and RFP to solicit applications						x	x	x	x													
Draft RFP for vessel selection and solicit applications									x	x												
RACE reviews and selects EFP vessels										x	x											
Preparation for at-sea trials, hire EFP field techs, ship equipment, coordinate start times and field seasons											x	x										
Fieldwork for EFP vessels													x	x								
Data analysis, second excluder workshop to review EFP results														x	x	x						
Work with AFSC on more exhaustive data analysis and report drafting																		x	x			
Schedule and present findings to NPFMC, submit final report, consider next steps																			x	x	x	x